



## Emergency Response: Perspective of a Large Air District



South Coast Air Quality Management District  
CARPA Summit  
October 15<sup>th</sup>, 2008

# South Coast AQMD Mission

The South Coast AQMD believes all residents have a right to live and work in an environment of clean air and is committed to undertaking all necessary steps to protect public health from air pollution with sensitivity to the impacts of its actions on the community and businesses.





# South Coast Air Quality Management District

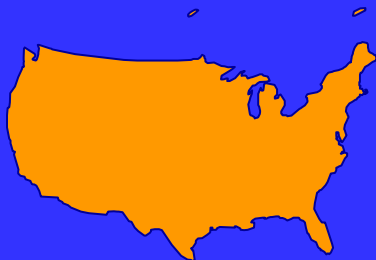
The South Coast Air Quality Management District includes all of Orange County and portions of Los Angeles, San Bernardino and Riverside Counties, an area of 10,743 square miles with 16.5 million people and 10 million vehicles.



# Roles of Air Regulation Agencies

## *U.S. Environmental Protection Agency*

- Adopts Health-Based National Air Quality Standards
- **Regulates Interstate Sources** (Trucks, Trains, etc.)
- Oversees State Clean Air Plans



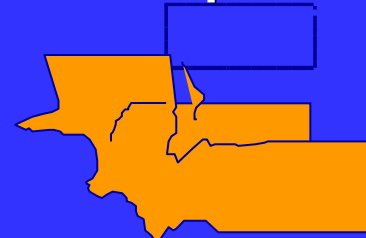
## *California Air Resources Board*

- Adopts Health-Based State Air Quality Standards
- **Regulates In-State Cars, Trucks, Fuels, Consumer Products**
- Approves Local Air District Clean Air Plans



## *Local Air Districts*

- **Monitor Air Quality; Issue Health Alerts**
- Prepare Clean Air Plans
- **Permit and Regulate Large Stationary Sources of Pollution**
- **Respond to Nuisance Complaints & Requests from First Responders**





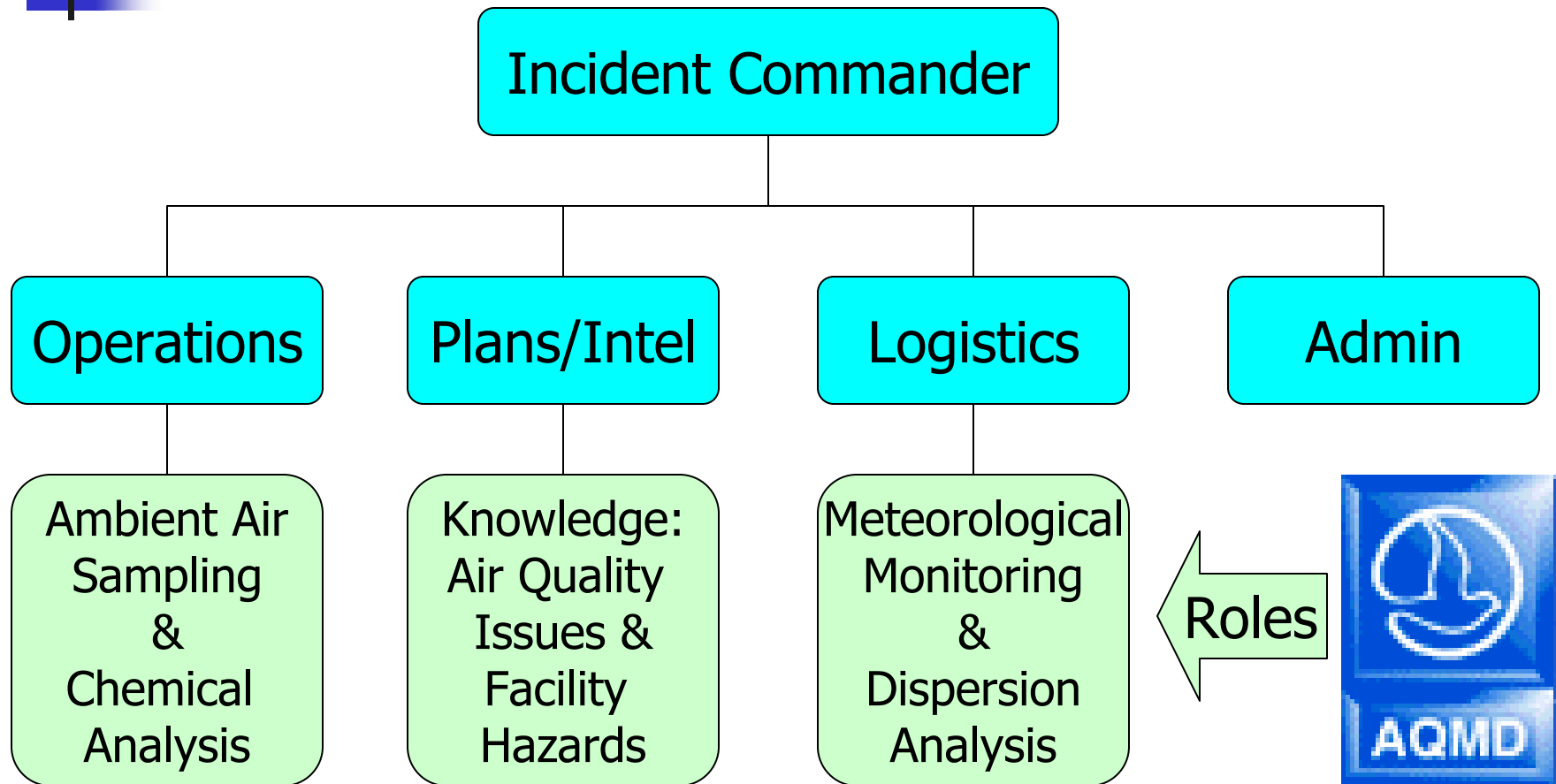
# Role of SCAQMD in ER

- Emergency Response Agency
  - California Code Regulations: Title 19
  - First Response Operator (FRO) Level 1
- Provide Specialized Support within the Incident Command System (ICS)
  - Local Scale
  - Regional Scale





# Incident Command System





# Sampling Overview

---

- Sampling Protocol
  - Sampling equipment and instruction provided to responders with appropriate PPE
  - Analysis done outside the safety perimeter
- Traditional Sampling Equipment Available:
  - Canisters
  - Tedlar Bags/ Lung Sampler
  - Containers for Non Gaseous Samples

# Canisters

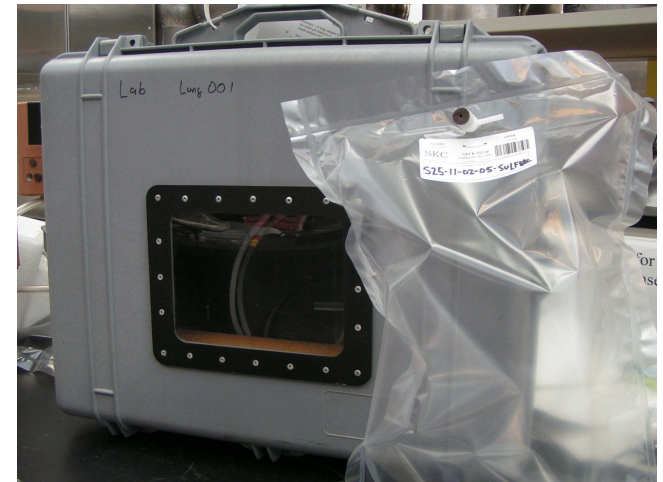
- Simple, rugged, quick-sampling, light
- Analysis based on U.S. EPA air toxics methods
  - Measures certain levels of gaseous compounds (i.e. Benzene, Vinyl Chloride, Xylene) to very low detection limits
  - Identification and concentration estimation of other compounds





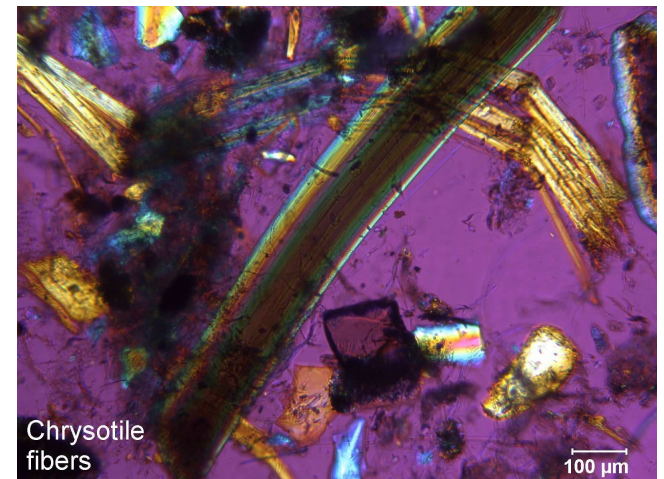
# Tedlar Bags, Lung Samplers

- Option for time integrated large sample or quick sample
- Ambient pressure sample
- Intrinsically safe
- Analysis for sulfur, nitrogen and other reactive compounds



# Containers for Non-Gaseous Samples

- Sampling for liquid or solid samples
- Headspace analysis for evidence that may be relevant in determining the cause or source of the response
  - Contaminated soil
  - Unknown liquid(s)
  - Paper
  - Clothing



# Limitations

- Time for Reportable Results
- Number of Samples Limited
- Static Sampling Strategy
  - Locations and timing decided with limited information
  - Upwind/Downwind





# Supplemental Equipment: On-Scene Analysis



- Van
- Portable GC/MS
- Meteorological Equipment
- H<sub>2</sub>S analyzer
- IMS - Technology not ready yet for these types of measurements



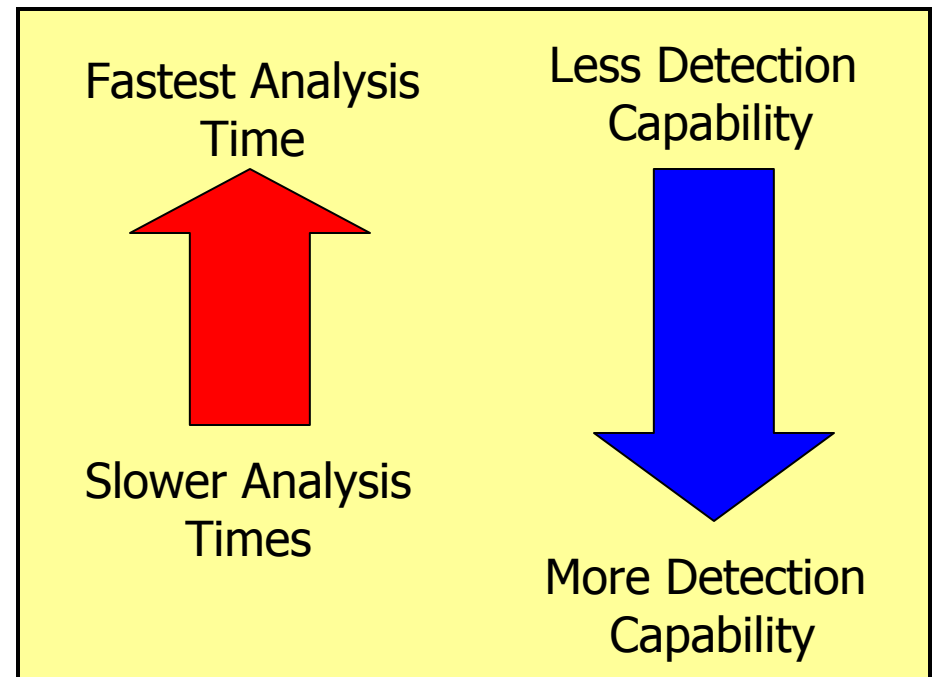
# Portable GC/MS Overview

- Complete Self-Contained Gas Chromatograph - Mass Spectrometer
- Truly Portable
- Rugged for Field Deployment
- Easily Decontaminated



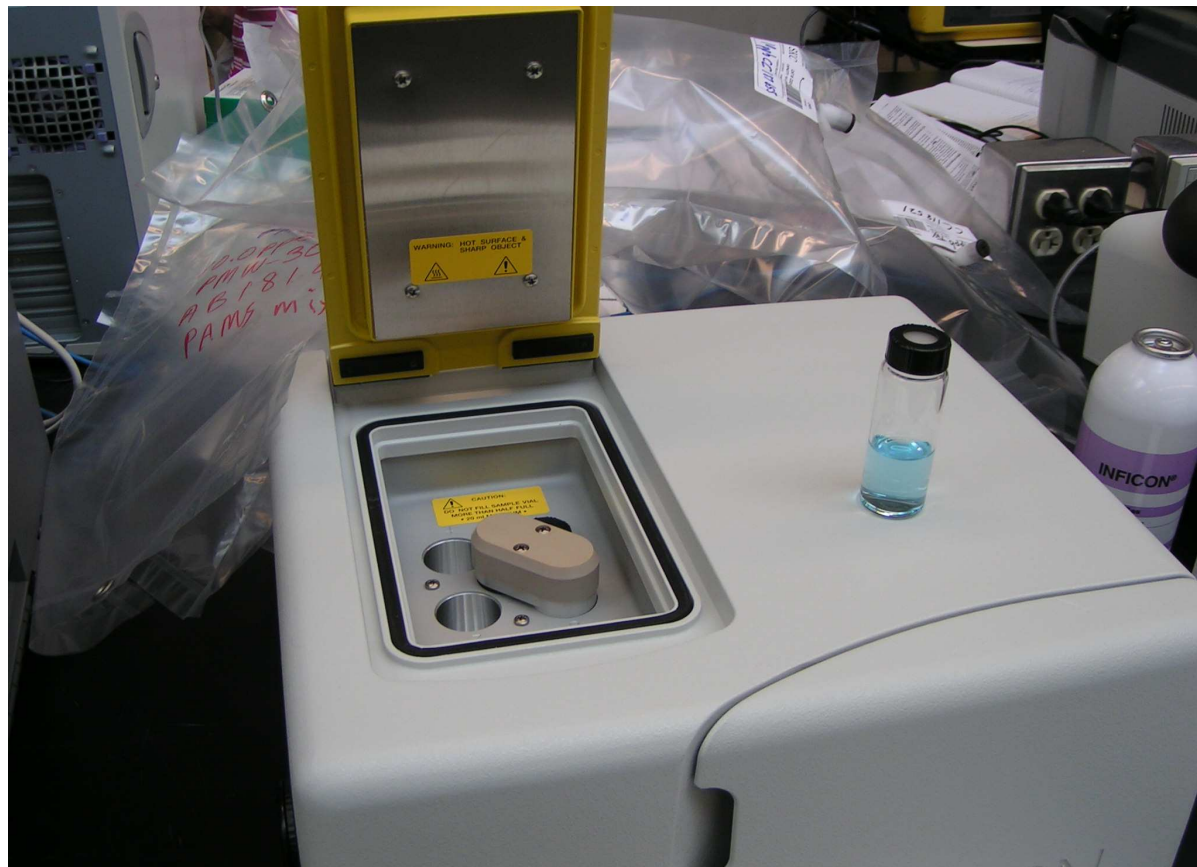
# Advantages - Versatility

- Survey mode
- Loop sampling mode
- Sorbent trap mode





# Advantages - Versatility



# Advantages – On Site Analysis

- Reduce Time Frame for Reportable Results
- Ability to Take Many Measurements
- Capability for a Dynamic Sampling Strategy



# Example Incident: Long Beach







# Portable GC/MS: Limitations

---

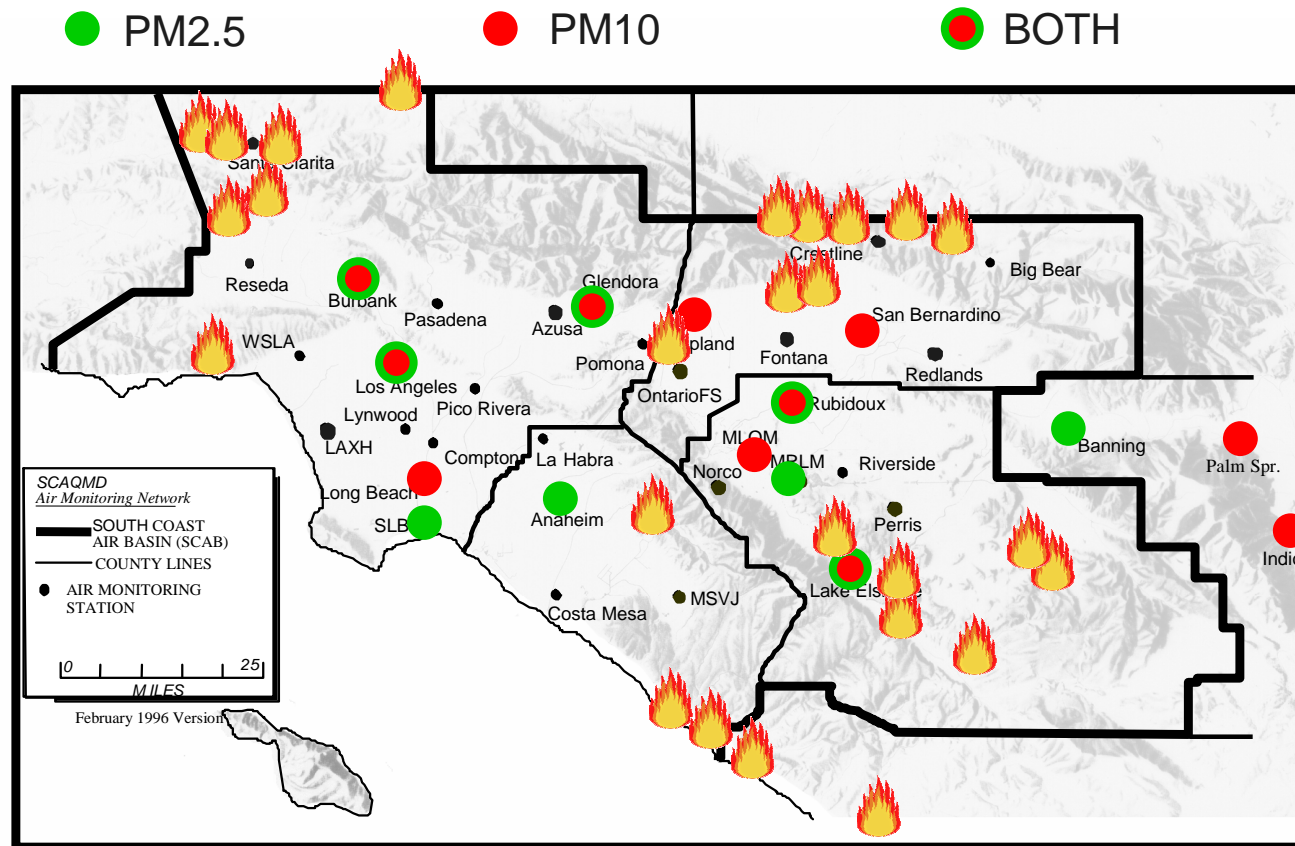
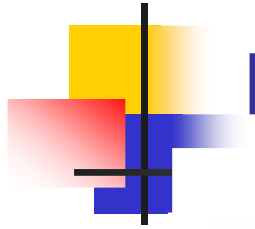
- Not as low a detection limit as a laboratory analysis
- Extremely volatile species are not detectable
- Not intrinsically safe
- Short battery life

# Southern California Wildfires

## October 23, 2007



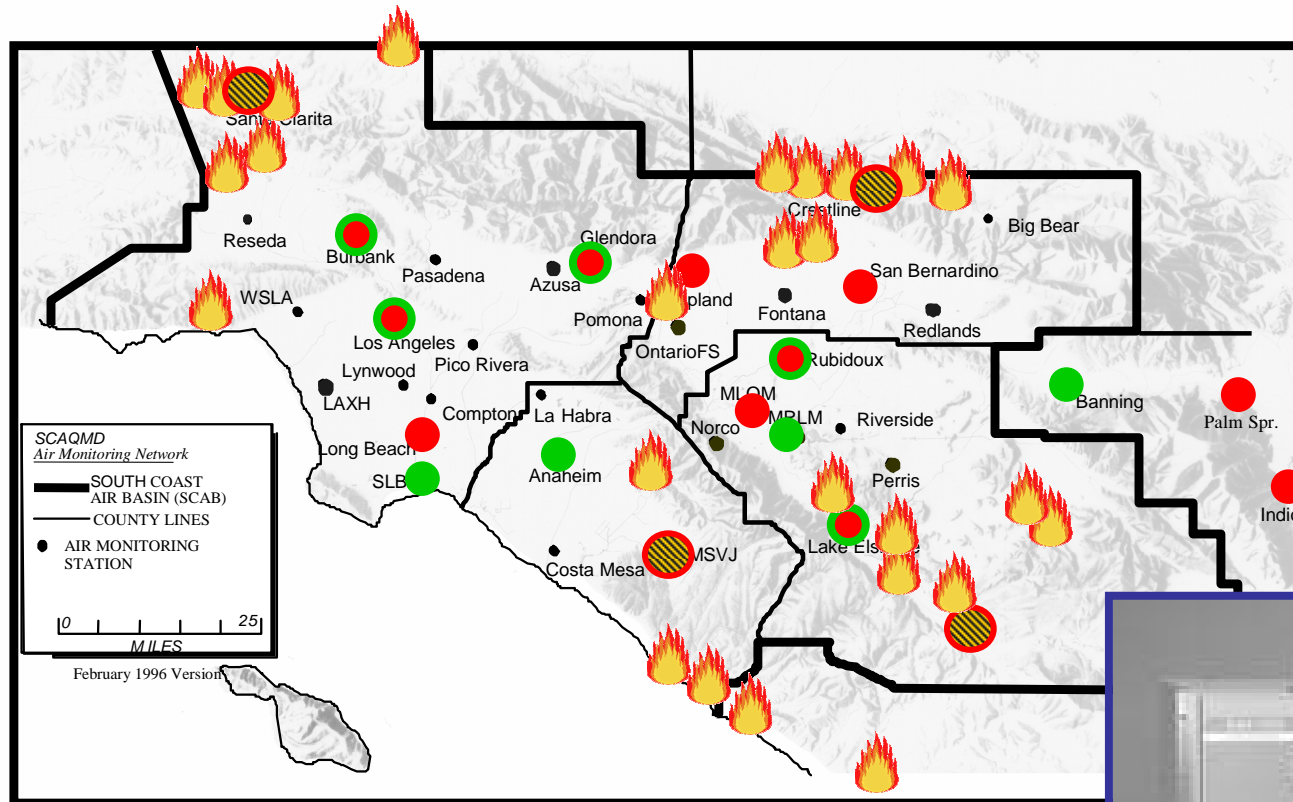
# Real-time (hourly) PM measurements





# Real-time (hourly) PM measurements

● Proposed New Fixed PM<sub>2.5</sub> (4)



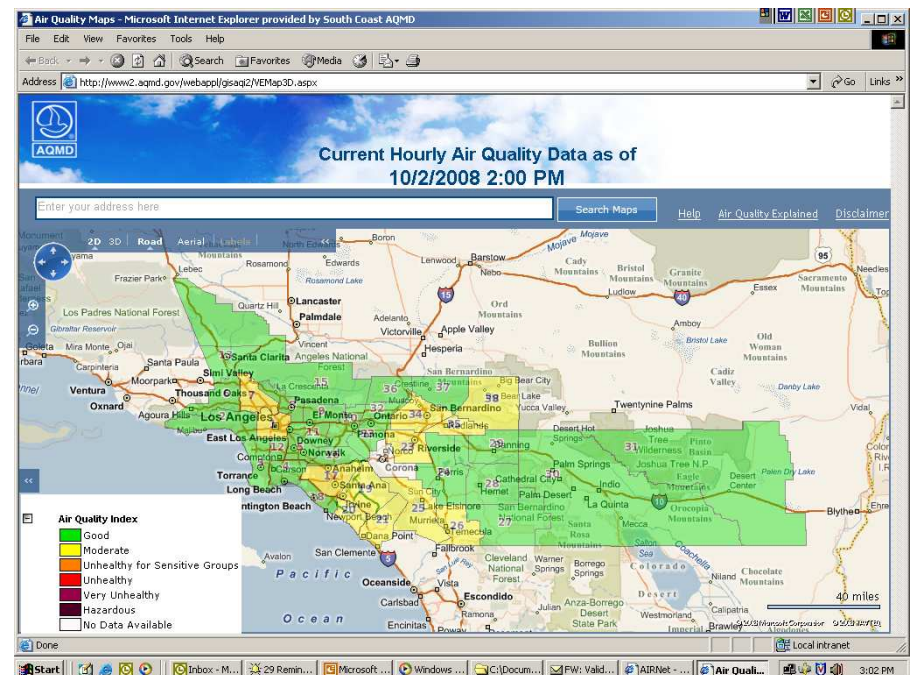
# Mobile Continuous PM2.5 Monitors

- Four new rapidly and easily deployable units (2-3 hours)
- Self-contained power and telemetry
- 1-hour data comparable to fixed site monitors
- Will fill gaps in network according to fire and smoke locations
- Pre-arrange potential locations for deployment



# Website and Interactive Voice Response (IVR) System Enhancements

- Interpolation method to predict levels in unmonitored areas
- More responsive hourly PM data rather than moving 24-hour averages
- Incorporate data from proposed mobile monitors
- Enhanced wildfire and health information on website, with color-coded, clickable maps



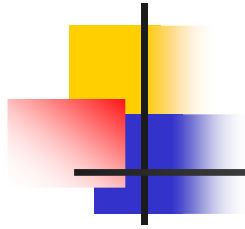




# Conceptual Revision of SCAQMD ER Policy

---

- More proactive support
- Inclusive of on-scene analysis
- Development and implementation team includes the following:
  - Engineering and Compliance
  - Media Office
  - Public Affairs
  - Planning
  - Atmospheric Measurements
  - Laboratory
  - Quality Assurance
  - Information Management



# Issues to Address

---

- Define “appropriate” amount of response
  - No “silver bullet” instrument
  - Balance of resources and beneficial analytical tools
- Instrument and equipment assessment and standardization

# Issues to Address

---

- Multidivisional coordination
- Interagency coordination
  - Integration of capabilities
  - Identify and address appropriate analytical needs and information to report
  - Inform capabilities and limitations to ICs and public health officials





# Awareness and Training Workshops

